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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,583

08/16/2006

Wolfgang Bickle

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EXAMINER

SAVAGE, JASON L

ART UNIT

PAPER NUMBER

1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,583	Applicant(s) BICKLE ET AL.	
	Examiner JASON L. SAVAGE	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-42 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 22-42 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060816</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 22, 26, 34-39 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation in claims 22 in line 14-15 and similar limitation in claim 42 that the sliding layer material projects past said porous carrier layer by the claimed amount is indefinite since it is not entirely clear if projects past is considered as meaning filling into the carrier layer at a depth within the claimed range or if the sliding material extends the claimed height above the surface of the coating. Given the description in the specification the limitation of projects past is taken as meaning the sliding material extends above the surface of the porous carrier layer.

Regarding claims 26, 34-39 and 42, a broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render

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a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

In the present instance, claim 22 recites the broad recitation thickness is between 100 and 500 μm , and the claim also recites the thickness is between 200-330 μm which is the narrower statement of the range/limitation.

Claim 22 recites that the sliding layer comprises at least 50 volume % of PVDF or 60 vol% of PA, PES, or PPS. However, claim 35 recites that the sliding layer comprises at least 60 vol% PTFE which would not be permissible if at least 50% to 60% of the sliding layer is one of the materials recited in claim 22.

Claims 26, 34-39 and 42 are rejected for reciting broad limitations and narrower limitations in the same claim. For the purposes of Examination, the claims have been treated as reciting the broadest claim limitation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 22-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. (US 5,217,814) in view of Braus et al. (US 4,847,135).

Kawakami teaches a slide bearing composite comprising a metallic backing support, a porous sintered copper based carrier layer and a sliding layer of a polymer based resin which fills the pores (col. 3, ln. 11-24). Kawakami further teaches that the porous carrier layer may comprise irregular metallic particles (col. 42-58). Kawakami also teaches the porosity of the composite is between 30-50% (col. 4, ln. 4-13) which entirely overlaps and thus would make the claimed porosity limitation obvious.

Kawakami teaches the thickness of the porous carrier layer may be approximately 300 μ m and the sliding layer protrudes roughly 20 μ m above the surface of the porous sintered layer (col. 2, ln. 30-46). While Kawakami teaches that sliding layer may comprise resin material, it does not teach or suggest that the resin is selected from the recited materials in the amounts claimed.

Braus teaches a slide bearing composite comprising a metallic backing layer, a porous copper based carrier layer having a sliding layer of a polymer based resin which fills the pores (col. 5, ln. 49-68). Braus further teaches that known polymers for the polymer based resin include PTFE, PVDF, PES, PPS and PA among other materials (col. 3, ln. 49-58). Braus also teaches that the polymer portion of the sliding layer may include 55% or more of the polymer such as PVDF or PTFE (col. 4, n. 27-43).

It would have been obvious to one of ordinary skill in the art to have modified the invention of Kawakami by following the teachings of Braus such as forming the composite bearing material wherein the sliding layer comprises polymers known to be

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suitable for use in such a composite bearing and in the amounts as recited by Braus with a reasonable expectation of success.

Regarding claim 23, Kawakami teaches that the grain size of the particles in the porous carrier layer may be between 60-150 μ m (col. 3, ln. 59-68) which overlaps the claimed grain size distribution range.

Regarding claim 24, the irregularly shaped powders having the recited grain size would be considered to have a shape parameter within the range claimed.

Regarding claim 25, the prior art is silent to the wall thickness increase of said sliding layer during bending. However, since Kawakami teaches the same materials in the same amounts as claimed, one would expect the wall thickness increased to be within the range claimed.

Regarding claims 26-27, Kawakami teaches the porous carrier layer have a pore volume which overlaps and thus would make the claimed porosity obvious in view of the prior art.

Regarding claim 27, no lead is taught as being add and as such the composite of the prior art would meet the claim limitations.

Regarding claims 29-35, Braus teaches both the claimed polymers and in amounts which exceed 60 and 75% col. 4, ln.35-49). Although the claimed polymers are not exemplified in the amounts are claimed, it would have been obvious to one of ordinary skill to have provided alternate polymer materials and in amounts as high as that claimed with a reasonable expectation of success.

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Regarding claims 37-38, Braus teaches that the sliding material may contain additive such as zinc sulfide, barium sulfate, graphite or carbon fibers in amounts of 5-40% (col. 3m kb, 31-42). It would have been obvious to one of ordinary skill in the art at the time of the invention to have added the recited additives in the recited amounts with a reasonable expectation of success since the prior art teaches their addition is suitable.

Regarding claim 39, while the prior art is silent to the porous carrier layer being formed of tin bronze particles having the claims CuSn composition, Braus teaches the carrier layer is formed of bronze (col. 4, ln. 59-68). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have employed a conventional bronze composition suitable for use in slide bearings such as the claimed tin bronze alloy with a reasonable expectation of success.

Regarding claim 40, Braus teaches the backing may be steel or bronze (col. 3, ln. 27- 48).

Regarding claims 41 and 42, the slide bearing as taught by the prior art could be employed as a baring bushing just as is recited by Applicant. Furthermore, the bearing of Kawakami in view of Braus has a sliding layer which protrudes from the surface of the porous carrier layer by 20 m (col. 2, ln. 35-39).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. SAVAGE whose telephone number is (571)272-1542. The examiner can normally be reached on M-F 6:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Savage/
Examiner
3-30-09

/JENNIFER MCNEIL/
Supervisory Patent Examiner, Art Unit 1794